



## How can friction help us?

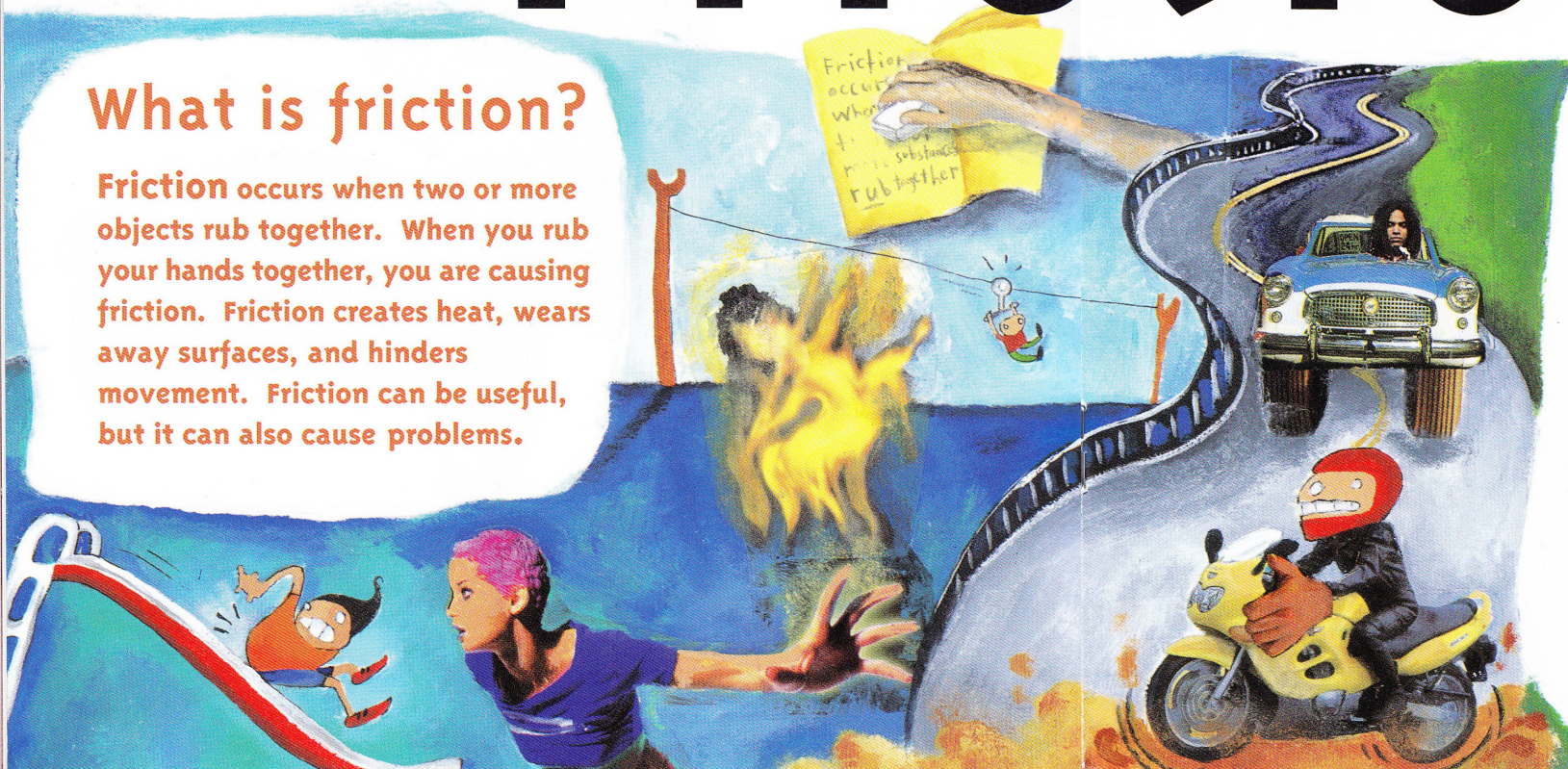
Friction can be very useful. The soles of shoes are designed to create friction. This friction helps us to walk and run without slipping and sliding on the ground. Our fingerprints create friction when we pick objects up.

# Friction

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## What is friction?

**Friction** occurs when two or more objects rub together. When you rub your hands together, you are causing friction. Friction creates heat, wears away surfaces, and hinders movement. Friction can be useful, but it can also cause problems.



This stops things sliding out of our fingers. The roller on a computer mouse works by friction too. It is rough and rubbery so that friction makes the ball roll over the mouse pad rather than sliding. The tread on car tyres acts in the same way, gripping the road so that the wheels push us forward. Think about what would happen if tyres didn't create friction. It would be like having your wheels stuck in the mud, spinning around on the spot rather than gripping the ground and pushing the car forward.

## When is friction not helpful?

Friction is not helpful when we want to move loads. Friction wastes energy because you have to push or pull harder to move a load. We oil Rollerblades and bicycles to reduce the amount of friction on the moving parts so that we can go faster with less effort. Friction makes heat, and it wears out machinery. When the parts in car engines rub together, the metal slowly wears away. Friction is also to blame when the knees of your jeans develop holes because they are worn through.



## How can we stop friction?

We can never stop friction completely, but we can do things to reduce it. Rub your hands together until they get warm. Then wet them and put some soap on them. Rub them together again. Does it take longer for them to get warm? The soap acts like the oil in machines. This oil lessens the friction when pieces rub together. They don't get as hot or wear out so quickly.

Skiers use a different method to reduce friction. They wax the bottoms of their skis to make them shiny and smooth. Snow is smooth too. When two smooth surfaces rub together, the friction is less than when two rough surfaces move against each other. By using wax, skiers can make sure that they slide over the snow more quickly.

